

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figs. 5, 6 and 8. These sheets, which include Figs. 4, 7 and 9, replace the original sheets including Fig. 4-9. In Figure 5 previously omitted off page connector B has been added. In Figure 6 previously omitted off page connector C has been added and the word frames removed from step 610. In Figure 8, element 720 has been changed from T for target to I for initiator.

Attachment: Replacement Sheets
 Annotated Sheets Showing Changes

Remarks/Arguments

In an Office Action dated March 6, 2007, the drawings were objected to; the Abstract was objected to; the specification was objected to; claims 1-49, 51-54 and 56-100 were objected to; claims 1-100 were rejected under § 101; and claims 1 - 100 were rejected under § 102 as anticipated by Ibrahim. Applicants request reconsideration in view of the amendments and the remarks below.

Drawing Objections

The drawings were objected to for lacking a B off page connector. B and C off page connectors have been added and various other corrections have been made.

Abstract Objections

The Abstract was objected to as not describing the invention.

The Abstract has been amended to conform to the requirement.

Specification Objections

Page 1 was objected to as including inventor names. Applicants request reconsideration. Page 1 is a conventional title page and so is normal practice. Further, while inventor names are not required, including them should not form the basis of a rejection.

The blank in the provisional application reference on page 2 has been corrected.

The suggestion on page 6, line 7 has been accepted.

The numbering error on page 12, line 18 has been corrected.

Claim Objections

Applicants thank the Examiner for the thorough review of the claims. Applicants address the objections to the remaining claims.

In Claim 12 the phrase “of said multiple blocks of data” was unclear. The phrase has been revised to read “the amount of data to be transferred in said multiple blocks of data.” “Multiple blocks of data” has antecedent basis as the fifth to eighth words in the preamble. The change from “of” to “in” is believed to clarify the language.

Claim 16 was objected to for two reasons. “New” has been added to clarify the first objection and the suggestion has been adopted from the second objection.

Claims 19, 20, 42, 43, 83, 99 and 100 were objected to for the phrase “the fibre channel protocol.” In all cases Applicants have corrected the capitalization of Fibre Channel to properly reflect that of the standard. Fibre Channel is a well known industry standard, so the use of “the” is submitted as being proper as it references the standard.

Claims 29 and 33 have been amended in similar manner as claims 12 and 16 to address the objections to those claims.

Claims 35 and 39 have been amended in similar manner as claims 12 and 16 to address the objections to those claims.

Claims 44 and 48 has been amended in similar manner as claims 12 and 16 to address objections to those claims. As to the “subset” rejection, Applicants submit the use of “a” in claim 48 is proper as this is a new subset, as indicated by the “new write request,” not the subset previously referenced in claim 44.

Claims 76 and 80 have been amended in similar manner as claims 12 and 16 to address the objections to those claims.

Claims 92 and 96 have been amended in similar manner as claims 12 and 16 to address the objections to those claims.

Section 101 Rejections

Claims 1 – 100 were rejected as non-statutory under § 101. Applicants respectfully traverse the rejections.

Claim 12 was rejected as not creating a tangible result and having no result or usefulness if the condition of the claimed method is not met. Applicants respectfully traverse the rejection. Applicants first note that § 101 is applied to the claim as a whole, not to any single element. With that in mind, Applicants submit that it is clear that the claim is statutory. Reviewing claim 12, it is a method for mirroring multiple blocks of data to multiple targets. This clearly defines tangible subject matter. Mirroring is well known to be the act of providing duplicate data copies to multiple targets to be stored on the targets. It is further well known that data transfer operations to store data at targets involve multiple steps, including requesting the transfer operation, receiving approval and performing the actual data transfer. Again, all of these are clearly tangible steps, particularly as these are steps in the clearly tangible operations of storing data on a target. Reviewing then the claimed operation “transmitting a write request for half of said multiple blocks of data to said multiple targets,” it is clear that this is also a tangible operation, a step in the tangible operation of mirroring data to targets. What is the result of the operation? A reply from the target, either an approval or a rejection, again both tangible as they are operations in transferring data.

Referring to MPEP § 2106 IV. c. 2. (2). b) where “Tangible Result” is discussed, the Applicants quote the closing sentence: “In other words the opposite meaning of ‘tangible’ is ‘abstract.’” The claimed operation, transmitting a write request to multiple targets is clearly not abstract, particularly when the preamble and the full environment and tangible items and operations it defines are considered. As it is not “abstract,” it is then “tangible.”

As to the portion of the rejection relating to the condition not being met then there is no result or usefulness, Applicants submit that this situation is inapposite. § 101 analysis does not require defining all possible conditions and requiring that all possible conditions then be statutory. The analysis is to be on what is claimed, not on what is not claimed. There is no rejection that the claimed operation does not have a result or usefulness. That is all that is required. It is not relevant what unclaimed elements or operations do. As an example, Applicants submit that numerous other unclaimed elements could be clearly concrete, tangible and useful, thus creating a statutory claim

using the unclaimed element theory used in the Office Action. Thus the portion of the rejection about the condition not being met is improper and should be withdrawn.

Applicants therefore submit that claim 12 is statutory and request withdrawal of the § 101 rejection.

Similar requirements apply to the rejections of claims 29, 35 and 44, so that the § 101 rejections of those claims are also improper.

As to claims 76 and 92, not only do the arguments of claim 12 apply, it is even clearer that tangible operations or elements are present. Claim 76 adds first and second switches, the second switch including a port, a mirroring device and logic. Claim 92 goes even further, adding a host and a physical storage unit. All of these are very clearly tangible elements. Merely taking a sub-element of a clearly tangible element and then declaring the entire claim non-statutory is clearly improper. The claim must be considered in its entirety, not dissected and rejected if any dissected sub-element is deemed non-statutory. Applicants submit that the rejections of claims 76 and 94 are highly improper and must be withdrawn.

Applicants also submit that the rejections of the dependent claims are improper and request their withdrawal.

Section 102 Rejections

Independent Claims 12, 29, 35, 44, 76 and 92

Claims 12, 29, 35 and 44 were rejected over Ibrahim. Applicants respectfully traverse the rejections.

Claim 12 was rejected based on col. 7, lines 34-47 and col. 8, lines 9-23 of Ibrahim.

Reviewing Ibrahim from col. 7, line 30 to col. 8, line 43, the operations are 1) send write commands (col. 7, lines 30-33); 2) receive Transfer Ready Responses and determine smallest (col. 7, lines 34-40); 3) transmit read command (col. 7, lines 48-57); 4) determine if write completed (col. 7, lines 58-63); 5) receive additional Transfer Ready Responses and determine smallest (col. 8, lines 1 – 20); 6) transmit next read command

(col. 8, lines 20-23); 7) determine if write completed (col. 8, lines 24 – 27); 8) receive additional Transfer Ready Responses and determine smallest (col. 8, lines 27-38); 9) transmit next read command (col. 8, lines 39 – 43); 10) determine if write completed (inherent from col. 8, lines 45 – 48); and 11) send write Command Ending Status (col. 8, lines 45 – 48). Thus Ibrahim only has one write request. While it has multiple read requests, they are not relevant to the claim as they would be directed to an entirely different object, a source or host not a target, than a write request. Thus the read requests cannot properly be analogized to the write request for half of said multiple blocks of data as specified in claim 12. There is no teaching or suggestion in Ibrahim, contrary to the hypothetical in the Office Action, to initiate a write request for less than all of the multiple blocks of data to be transferred. Shorter read requests are issued, but again they cannot properly be analogized as they are not directed to the multiple targets as required in the claim.

Applicants therefore submit that the rejection of claim 12 is improper and should be withdrawn.

As independent claims 29, 35, 44, 76 and 92 have similar write request elements as claim 12, they are allowable for similar reasons. Further, this renders all the claims dependent from those independent claims allowable.

Claims 16, 33, 39, 48, 80 and 96

Claims 16, 33, 39, 48, 80 and 96 were rejected over Ibrahim. Applicants respectfully traverse the rejections.

Claim 16 was rejected under exactly the same grounds as claim 12. Therefore, as a first point, claim 16 is allowable for the same reasons as claim 12, as Ibrahim does not teach or suggest a write request for less than the full amount. As a second point, the relationship between claims 12 and 16 must be considered. Claim 12 requires sending a write request for half of said multiple blocks. Claim 16 requires sending a write request for half of the blocks of said previous write request, thus $\frac{1}{4}$ if the first iteration. Even in the send responses of Ibrahim this further relative reduction is not shown. In Ibrahim each read command is independently based on the Transfer Ready Responses and bears

no relative relationship to any prior read command. Thus, even using the improper read commands of Ibrahim does not teach or suggest the relative operation required in claim 16.

Applicants submit the claims 16, 33, 39, 48, 80 and 96 are allowable, like arguments applying all the claims.

New Claims

Applicants have added new claims 101 – 118. All of the new claims include a write request for less than the initially requested number of data blocks so that the arguments made above with respect to claim 12 apply. Therefore Applicants submit that all of the new claims are allowable.

Conclusion

Based on the above remarks Applicants respectfully submit that all of the present claims are allowable. Reconsideration is respectfully requested.

Respectfully submitted,

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